Enclosure 1

December 2005 Progress Report Document

Enclosure 1
South Carolina's Ozone Early Action Compact
December 2005 Progress Report
December 22, 2005

South Carolina continues to be committed to the 8-hour Ozone Early Action Process. Partnership opportunities have been developed and the awareness of local officials about air quality issues has resulted in proactive, voluntary and regulatory actions that would not have occurred without the Early Action Compact (EAC) process. Education and awareness opportunities have informed thousands of people across South Carolina of the impact each and every one of us has on air quality and the benefits that will be awarded with improving air quality.

Transportation Conformity and Nonattainment New Source Review are requirements of the Clean Air Act that designated nonattainment areas must comply with. In place of Transportation Conformity, South Carolina has implemented the Smart Highways Program. Detailed information on Smart Highways is covered later in this document. Additionally, nonattainment new source review is a more restrictive construction permitting process for certain stationary sources in nonattainment areas. A review of permit applications revealed that there have been no construction projects in the deferred counties that would have required a nonattainment new source review since the designation date. This simply means that no emission reductions can be attributed to this federal prescriptive requirement.

The Department continues to be pleased with the energy of the participants in the EAC process including counties, agencies, universities, organizations, businesses, industries and environmental groups. The continuing effort of these groups is a marvelous example of partnerships in many directions. Each of these diverse parties has come together for a worthy common goal of providing cleaner air sooner to the citizens of South Carolina.

Perhaps the most important information provided in this report is that data from AQS reveals attainment of the 8-hour ozone standard. A table is included in Enclosure 2. This table gives the 4th highest 8-hour averages for each monitor for the years 2003, 2004, and 2005 as well as the current three-year average. These numbers are based on data validated through July 31, 2005. Once all of the 2005 data has been verified any necessary updates will be provided. As reflected in the table, South Carolina attains the 8-hour Ozone standard across the entire state.

When the Environmental Protection Agency (EPA) named areas across the nation as not attaining the standard, only 3 areas in South Carolina were included. Those were the Columbia area (portions of Lexington and Richland counties), the Greenville-Spartanburg-Anderson area and a portion of York County. That portion of York County (included in the Charlotte-Rock Hill-Gastonia (NC-SC) Metropolitan Statistical Area) was the only area designated as nonattainment with an effective date of June 2004. The other two areas, Columbia and Greenville-Spartanburg-Anderson were designated nonattainment, but because of their commitment to the Early Action process, the effective date was deferred. Each of the remaining counties in South Carolina continues to participate in the Early Action process, even though they are meeting the 8-hour Ozone standard. This shows local government commitment to protecting the health and environment for the citizens of South Carolina.

Beginning with December 2003 to present, this report represents the fifth bi-annual progress report. In addition, local plans were submitted in March 2004. The local plans identified the emission reduction measures that would be implemented by the participating county. The South Carolina EAC State Implementation Plan (EAC SIP) was submitted December 2004 and supplemental information to the EAC SIP was submitted on April 20, 2005. Each of these submittals contains information updating local and state measures supporting the EAC process and can be found on the EPA website (http://www.epa.gov/ttn/naaqs/ozone/eac/eac_r4.htm#SC_swcor) as well as the Department of Health and

Environmental Control (DHEC) website (http://www.scdhec.gov/eqc/baq/html/eap.html). Enclosure 4 includes the table provided by EPA's guidance document of October 17, 2005, for each county identifying each of the local measures included in their respective local early action plan. The table includes progress made since the June 2005 Progress Report in addition to links to previous reports and websites that have included updates and specific information regarding each strategy. The table for each participating county, is grouped by the following areas:

Appalachian: Anderson, Cherokee, Greenville, Oconee, Pickens, Spartanburg
Catawba: Chester, Lancaster, Union, York
Pee Dee: Chesterfield, Darlington, Dillon, Florence, Marion, Marlboro
Waccamaw: Georgetown, Horry, Williamsburg
Santee Lynches: Clarendon, Kershaw, Lee, Sumter
Berkeley-Charleston-Dorchester: Berkeley, Charleston, Dorchester
Low Country: Beaufort, Colleton, Hampton, Jasper
Lower Savannah: Aiken, Allendale, Bamberg, Barnwell, Calhoun, Orangeburg
Central Midlands: Fairfield, Lexington, Newberry, Richland
Upper Savannah: Abbeville, Edgefield, Greenwood, Laurens, Saluda

This document includes highlights of activities in the deferred nonattainment areas as well as statewide activities. Detailed information may be found on the tables in Enclosure 4.

Deferred Nonattainment Areas
GREENVILLE- SPARTANBURG -ANDERSON AREA

Air Quality Education and Awareness: Greenville County is preparing a grant application due to USEPA Region 4 on December 23, 2005, in advance of the 2006 Ozone Season. The County is planning on conducting an extensive public awareness campaign should the grant application be approved. Items would include: radio and TV advertisements, informational wheels, brochures, involvement in community activities, and funds to enable the Greenville Transit Authority to provide free transit services during high ozone alert days.

Alternative Transportation – Walking/Biking: Spartanburg Area Transportation Study (SPATS MPO) is one of thirteen areas across the nation selected by the National Center for Bicycling and Walking for the 2004-2005 "Walkable Community Workshops" program. Workshops were held in 8 different areas of the SPATS MPO in May 2005 for this program. SPATS staff continue to be active in ongoing educational efforts aimed at encouraging alternate modes of travel.

Transportation Planning: Anderson County Council passed a resolution in December 2005 creating a committee to investigate capital funding projects for roads and bridges; within that commission, they will also be looking at funding for projects to relieve congestion on county roads and the addition of bike lanes on county roads.

Intelligent Transportation Systems: Greenville County completed implementing the congestion management plan on several major thoroughfares; cameras and variable message boards have been installed on I-85 through Anderson, Greenville and Spartanburg Counties. In December 2005, the Greenville County Planning Commission retained the services of a transportation consultant to update the Long Range Transportation plan including an updated congestion management plan and a bicycle and pedestrian plan.

Intelligent Transportation Systems: The Spartanburg Area Transportation Study (SPATS) MPO continues to program funds for congestion management plan on several major thoroughfares; cameras and variable message boards have been installed on I-85 through Anderson, Greenville and Spartanburg

Counties. Current SPATS projects designed to manage congestion without adding lanes to a thoroughfare include: Spartanburg City Traffic Signalization, SC 9 Signal Coordination, and intersection improvements along Old Furnace Rd. In addition, through its Enhancement Program, SPATS continues to fund pedestrian and bicycle education efforts, and specific projects on the ground. The Long Range Transportation plan, currently being revised, will include an updated congestion management plan and a bicycle and pedestrian plan.

School buses: Approximately 90 diesel buses will be retrofitted with particulate filters during 2006 in the Greenville-Spartanburg-Anderson area. A reduction in VOC emissions as well as other pollutants is expected. The Education Department also purchased 61 new buses that should be on the road in late 2005.

Promote research in energy efficiency at local universities, industries, energy companies, federal government, and other institutions that improve air quality: In 2005, Clemson University received an $856,000 award from the Department of Energy (DOE) to develop more efficient processes for the centralized production of hydrogen by splitting water. The award was one of only three made nationwide under DOE's Nuclear Hydrogen initiative. The Clemson team will interact not only with U. S. engineers and scientists but also with those in France, Italy, and Japan, all of whom have teams working on related processes. Clemson University is developing the International Center for Automotive Research (Clemson-ICAR) in Greenville. The ICAR project will be the premier automotive and motorsports research and educational center in South Carolina. Research will emphasize development of innovative materials and processing technologies, which will enable the development of more efficient, and environment friendly vehicles, as well as electrical power generators.

Alternative Fuels: In 2005, Clemson University Professor James G. Goodwin, Jr., chair of the Clemson's chemical and bimolecular engineering department, received a DOE grant for energy research through DOE's State Technologies Advancement Collaborative. Goodwin's work focuses on the performance of iron-based bimetallic catalysts that are crucial to synthesis of clean fuels, additives and lubricants derived from coal and biomass gasification. Clemson will lead a partnership that includes Louisiana State University, the S.C. State Energy Office, the Louisiana State Energy Office, North Carolina's Research Triangle Institute, Rentech and Sud-Chemie Inc. This grant reflects $875,499 in DOE-STAC funds and $294,499 in cost sharing by the industrial and governmental participants.

Alternative Fuel Infrastructure: In June 2005, a local company began selling E-85 at two stations located along Interstate 85, increasing the number of public E85 sites in the Upstate area to 12. Currently there are a total of 10 public E85 sites in Greenville County with one of those 10 being split between Greenville and Spartanburg. There is 1 public E85 site in Anderson County.

Green Power: A Green Power station will be constructed at the Anderson Regional Landfill in 2006. Santee Cooper, through Blue Ridge Electric Cooperative, recently began offering the purchase of Green Power to Anderson, Greenville, Oconee, Pickens and Spartanburg County residents. Residential customers who increased their purchase of Green Power by 2 blocks were offered a free energy analysis between October 1 and December 31, 2005.

Open Burning: At the November 2005 Upstate Air Quality Steering Committee meeting, the Committee directed staff to coordinate with local governments to enforce DHEC's burning ban year-round.

COLUMBIA AREA (Richland and Lexington Counties)

Stakeholder Meetings: Lexington County EAC contacts met with SELC on June 6, 2005.

Air Quality Education and Awareness: Richland and Lexington Counties have formed a partnership with other agencies to develop a gas powered lawnmower/lawn equipment exchange; kerosene can exchange; and a gas cap replacement/gas cap wrenches event.

Ozone Awareness: Richland County website has a direct link to the ozone forecast. The ozone coordinator, frequently issues press releases and offers media interviews to promote ozone awareness and to highlight county initiatives. E-mails in 2005 included updates on forecasted ozone action days, information on the availability of E85 and other alternative fuels, a list of things you can do to improve air quality, and car maintenance tips to improve fuel efficiency and lower emissions.

Ozone Awareness: Richland County has entered into an agreement with a local station to broadcast Richland Revealed at 11:30 am on Sunday mornings. An episode of the show to be dedicated to air quality is planned for the spring of 2006. This episode will highlight the importance of clean air, and promote steps that can be taken to reduce pollution.

Ozone Awareness: Informational posters were placed in the lobby of the Richland County Administrative Building, directly across from the Treasurer's Office, where residents come to pay vehicle and other taxes.

Alternative Transportation – Walking/Biking: The Columbia Area Transportation Study (COATS MPO) is conducting a planning study for bicycle and pedestrian facilities in the Central Midlands regions (Lexington, Richland, Kershaw, and Calhoun counties). A public meeting was held on November 14, 2005.

Alternative Fuel Infrastructure: Currently there are two public E85 sites in Lexington County and 7 public sites in Richland County.

Idling: Lexington County has 15 trucks that are equipped with Engine Control Module software in which idling time is set for 5 minutes. Caterpillar has incorporated this in the engine software (ACERT Technology).

Green Power: A Green Power station will be constructed at the Screaming Eagle Landfill in 2006. Santee Cooper, through Mid-Carolina Electric Cooperative, offers the purchase of Green Power to residents in Lexington, Richland, Newberry, Saluda and Aiken counties. Residential customers who increased their purchase of Green Power by 2 blocks were offered a free energy analysis between October 1 and December 31, 2005.

Land Use – Park and Ride Facilities: Richland County is expected to begin a pilot park-and-ride program in the spring of 2006. Visual inspections of the park and ride facility in Lexington County at Highway 378 and I-20 revealed maximum usage.

Land Use: Lexington County Planning Department working with county council and developers for proposed scenic corridors throughout the county for preservation of natural buffers along roadways.

Land Use: Through Richland County's new Land Development Code that went into effect on July 1, 2005, the county has altered its zoning regulations, design controls, and "green development" practices in an effort to promote smart, sustainable growth, which will aid in improving air quality throughout the county and region. Updates to the code are designed to address the following areas:

1. To provide for adequate light, air, and open space;
2. To prevent the overcrowding of land to avoid undue concentration of population and to lessen congestion in the roads;
3. To facilitate the creation of a convenient, attractive, and harmonious community;

4. To protect and preserve scenic, historic, cultural, or ecologically sensitive areas;
5. To regulate the density and distribution of populations and the uses of buildings, structures and land for trade, industry, residence, recreation, agriculture, forestry, conservation, airports and approaches thereto, water supply, sanitation, protection against floods, public activities and other purposes;
6. To facilitate the adequate provision or availability of transportation, police and fire protection, water, sewage, schools, parks and other recreational facilities, affordable housing, disaster evacuation, and other public services and requirements as are set forth in this chapter;
7. To secure safety from fire, flood, and other dangers;
8. To encourage the development of an economically sound and stable county;
9. To assure the timely provision of required roads, utilities, and other facilities and service to new land developments;
10. To assure the adequate provision of safe and convenient traffic access and circulation, both vehicular and pedestrian, in and through new land developments;
11. To assure the provision of needed public open spaces and building sites in new land developments through the dedication or reservation of land for recreational, educational, and/or transportation purposes;
12. To assure, in general, the wise and timely development of new areas, and redevelopment of previously developed areas in harmony with the comprehensive plans of Richland County and its municipalities;
13. To assure compatibility between neighboring properties and adjacent zoning districts; and
14. To further the public welfare in any other regard specified by the Richland County Council.

In addition to the progress indicated by each county on the enclosed spreadsheets, the Department continues to be involved with the counties in a number of other projects that benefit air quality locally as well as statewide. Details of these activities are included in Enclosure 5.

State Activities

Smart Highways: The Smart Highways effort through the EAC process addresses transportation planning and any impact transportation might have on air quality. This approach is not a requirement of the EAC and is not being done in any other EAC area in the country. It is an example of the commitment by air quality and transportation agencies at the local, state, and federal level. It also acts as the basis for a back up plan should the EAC process be denied. In addition, South Carolina already has in place the necessary consultation procedures to address traditional transportation conformity requirements for all pollutants in any nonattainment area. Again, this initiative is something no other state has accomplished.

As a result of this effort, each of the four Metropolitan Planning Organizations (MPOs) in deferred nonattainment areas (Greenville, Anderson, Spartanburg, Richland and Lexington counties) demonstrated that their respective long-range transportation plan eliminates or reduces violations of the national ambient air quality standards (NAAQS). Copies of the four MPO reports may be found at http://www.scdhec.gov/eqc/baq/html/eap_Smart_Highways.html.

The documentation in the reports was the subject of interagency consultation. Interagency consultation began in January 2003, and continued through completion of the emissions analysis with regular meetings to discuss and agree upon schedules, model parameters, latest planning assumptions, horizon years, exempt projects, and regionally significant projects. In addition, each of the MPOs provided public review of this report in accordance with the respective MPO's public involvement policy. A key element of the public involvement process is a public review of transportation planning documents including the Long-Range Transportation Plan.

Using 2002 as the base year, the following table shows that the emissions expected from implementing the proposed MPO long-range transportation plan(s) are less than emissions from either the baseline case or the no-build case for 2007. Further emission reductions are forecasted for the longer term. The specific numbers can be found in each MPO's report.

	ANATS		GPATS		SPATS		COATS	
	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC
2002	7.703	4.354	30.213	19.276	17.96	10.58	45.295	27.135
2007	5.507	2.94	21.58	13.648	11.86	6.83	32.017	18.962
Reduction tpd	2.196	1.414	8.633	5.628	6.1	3.75	13.278	8.173
Reduction tpy	801.54	516.11	3151.045	2054.22	2226.5	1368.75	4846.47	2983.145

tpd = tons per day
tpy = tons per year

Education and Outreach: A toll free number was utilized in 2005 to make the forecast more available. The number of contacts for the e-mail distribution for this season was over 130 contacts. Department staff assisted Anderson County in a gas can exchange program in which over 200 new, environment friendly gas cans were distributed. Working with a middle school in the Columbia area, Department staff helped initiate education materials to support no idling for school buses and car pool drivers. The school developed and implemented a no-idling policy for the grounds. This school was recognized by DHEC's "Champions of the Environment" program.

Commuting Reduction Programs: The *Take a Break for the Exhaust* (TABFTE) program expanded for 2005. Participants include the Bureau of Air Quality, Bureau of Water, Bureau of Land and Waste Management, the South Carolina Energy Office and the Wisconsin Department of Natural Resources. The *SmartRide* Program for the Newberry to Columbia route saw an increase of 200 percent between January and November 2006. In February 2003, the Bureau of Air Quality (Bureau) was designated as a "Best Workplace for Commuters." The Bureau currently holds the only designation in South Carolina.

Palmetto State Clean Fuels Coalition: The Palmetto State Clean Fuels Coalition hosted a Biofuels Showcase on November 18, 2005. This event showcased ethanol and biodiesel and featured a Ride and Drive event where participants had a chance to drive the AFV's on display. Over the last decade, Clean Cities Coalitions have reported activities that have displaced more than a billion gallons of petroleum in transportation. By implementing projects that make use of alternative fuels, hybrid vehicles, truck idle reduction, fuel blends, and fuel economy improvement, Coalitions have helped build local and regional markets for non-petroleum solutions to our energy challenges. On October 14, 2005, the Palmetto State Clean Fuels Coalition hosted a variety of celebratory events in Rock Hill, Aiken, Columbia and Greenville.

There are currently 23 public E85 refueling sites in South Carolina with 4 additional stations planned with the next 6 months. In addition to the E-85 refueling sties located at the SC DHEC in Columbia, there are 5 other refueling sites that are not open to the public (2 in Aiken County at the Savannah River Site; 1 in Berkeley County at Santee Cooper; and 2 in Horry County). In 2006, the University of South Carolina and the City of Rock Hill each have plans to install an E85 refueling site; bringing the total number of non-public refueling sites to 8 during 2006.

Energy Efficiency: The Bureau of Air Quality experienced an estimated 28 percent energy savings in 2005 using the computer monitor power management software. This software has recently been installed on the servers for the Bureau of Water and Bureau of Land and Waste Management, increasing the number of computer monitors from 150 to over 500.

State EAC Regulations: Regulation 61-62.5, Standard 5.2, Control of Oxides of Nitrogen (NO_x), is a newly-promulgated, broad-based regulation that applies state-wide to new and existing stationary sources that emit NO_x from fuel combustion and have not undergone a best available control technology (BACT) analysis for NO_x. The regulation is designed primarily to assist with the issue of growth and is also geared toward smaller sources that fall below the applicability thresholds for prevention of significant deterioration (PSD). These are sources that, for the most part, would not otherwise be required to install NO_x controls.

For new sources, the regulation requires the installation of control technology that is based on BACT standards found in the national RACT/BACT/LAER clearinghouse. For existing sources, the regulation only applies when an applicable unit replaces their burner. At this point, they will be required to replace their burner with a low burner or equivalent technology capable of achieving a 30 percent reduction from uncontrolled levels.

The NO_x reductions for new sources that we expect to achieve as a result of this regulation vary greatly depending on the source type. For instance, for new combined cycle natural gas turbines of less than 50 megawatts capacity will be required to install controls that will achieve the equivalent of a 94 percent reduction from uncontrolled levels. The control requirements will help ensure that the growth of NO_x emissions is controlled.

For existing sources, this regulation will be triggered based on existing sources replacing their burners and it may take a number of years for these reductions to be realized. However, these estimates, based on the number of applicable sources in the inventory, indicate that when fully implemented, the regulation has the potential to reduce NO_x emissions by 2,913.51 tons per year.

It is important to note that these reductions were not used to support the modeling demonstration. Even without these additional control measures, which will apply statewide rather than just in select areas, modeling analysis indicates that all monitors will be attaining the standard by 2007. However, the reductions from these regulations are quantifiable, permanent and will ensure that South Carolina gets cleaner air sooner.

The other regulation that was revised in order to get additional reductions in ozone precursors as part of the EAC process was Regulation 61-62.2, Prohibition of Open Burning. The most significant revisions to this regulation are as follows: deleting the exception for the burning of household trash, revising the exception for the burning of construction waste, and revising the exception for fires set for the purpose of firefighter training.

The burning of household trash presents health and environmental concerns for many communities. The smoke generated from these activities is a nuisance to some and a health threat to others with asthma or other respiratory problems. Regulation 61-62.2 had previously prohibited the burning of household waste except where other disposal options were not available. This activity is now clearly prohibited and this should provide the clarity necessary to help us enforce this restriction.

With respect to the exception for the burning of construction waste, the Department has revised this provision to allow only residential construction waste to be burned and this will only be allowed if it meets the provisions of the regulation. For instance, such waste will now only be allowed to be burned outside of the ozone season (only between November 1 and March 31) and only if the burning is conducted at least five hundred feet from any occupied structure. Furthermore, only certain “clean” wastes are allowed to be burned. Again, the Department believes that the burning of construction waste presents health and environmental concerns for many and that prohibiting this waste from being burned will alleviate some of these concerns and will also provide additional NO_x reductions.

Finally, the exception for the purpose of firefighter training has been revised to ensure that minimum health, environmental and safety concerns are addressed. The Department intends to do a review of permanent firefighter training facilities and will evaluate nonpermanent sites and require Department approval prior to a burn.

Based on the Department's 1999 emissions inventory, residential burning of household waste generates 2,379 tons of NO_x and 11,896 tons of VOCs in the state annually. As for the ban on the burning of construction waste, the data indicates that the ban on residential construction waste alone will result in annual reductions of 147 tons of NO_x and 625 tons of PM (see Appendix 13 for further information). Information on the amount of reductions to be expected from the ban on the burning of commercial construction waste is not available, but it is clear that substantial reductions in NO_x and VOCs will occur statewide starting in 2004 as a direct result of the elimination of this activity as well.

Future State Activities

EAC Summit: The Department is in the early planning stages for a 2006 EAC Summit. We look forward to working with EPA and other stakeholders in providing programs, information and tools to the EAC contacts in South Carolina. Maintaining momentum in this program is essential in keeping this proactive opportunity and we look forward to working with the counties in providing alternative approaches to improving air quality.

April Car Care Month: Despite numerous improvements in automotive technology, motor vehicles continue to be a major source of air pollution, accounting for approximately 45 percent of the ozone-causing nitrogen oxides (NO_x) in our nation's air. April is National Car Care Month. DHEC is soliciting involvement from the EAC contacts to create a plan for a local program(s) to focus on emissions from automobiles. There is also an opportunity to partner with the State Museum to anchor a statewide awareness campaign regarding the effect of automobiles on local air quality. More information will be provided as this opportunity unfolds.

Southeastern Diesel Collaborative: The Southeastern Diesel Collaborative is a new partnership between US EPA Region 4, State and local air quality programs, and other public and private entities and is intended to promote opportunities to reduce diesel emissions. The collaborative is modeled after other regional diesel collaboratives, which have proven beneficial for addressing a significant source of mobile source air pollution. The collaborative is seeking to have its first membership meeting during the first quarter of 2006. South Carolina is excited to be able to participate in this forum to ensure access to the latest technological advances in the control of diesel emissions and to able to share the information gathered with other local government and private companies.

School Buses: The South Carolina Department of Education (SDE) operates over 5,000 school buses across the state. SDE has agreed to make York County and the five deferred areas the top priority in assigning new and retrofitted buses to service. SDE is also partnering with private companies and local school districts to provide specific funding for school bus retrofits and clean air programs.